

ABSTRACT OF THE DISCLOSURE

An energetic composite material is provided that includes inorganic particles and self-assembled monolayers (SAMs) formed on the inorganic particles. The SAMs include multifunctional linking molecules and optionally non-linking molecules. The multifunctional linking molecules have linking functional groups respectively chemically bonding to a corresponding pair of the inorganic particles so that the multifunctional linking molecules interconnect the inorganic particles to one another to form a network of inorganic particles. The optional non-linking molecules include a non-linking functional group chemically bonded to a corresponding one of the inorganic particles. Preferably, the multifunctional linking molecules and/or the optional non-linking molecules are fluorinated. Also preferably, bare aluminum particles are selected as the inorganic particles and are passivated with the SAMs.